

Coating binder, esp. for overcoating(s) for vehicles

Claims OF DE4445355

1. For aqueous and non-aqueous coat means suitable bonding agents, containing one or more hydroxyl-functional (Meth)Acryl of copolymers with a content of groups of carboxyls according to an acid number of 25 to 50 mg KOH/g, those are available by copolymerisation of
- a) 20.0-35.0 thread % one or several Glycidylester of alpha, branched aliphatic satisfied mono carbonic acids alpha-dialkyl-substituted,
 - b) 15.0-25.0 thread % one or several hydroxyalkyl esters (Meth)Acrylsaeure,
 - c) 10.0-40.0 thread % one or several alkyl esters (Meth)Acrylsaeure,
 - d) 8.0-25.0 thread % (Meth)Acrylsaeure, and
 - e) 20.0-35.0 thread % styrene and/or one or several styrene derivatives,

whereby the sum of the components A) to e) to 100 thread % complements itself in each case.

2. Bonding agent according to requirement 1, by the fact characterized that it contains one or more organic solvents.

3. Bonding agent according to requirement 1 and 2, by the fact characterized that the groups of carboxyls are totally or partly neutralized.

4. Coat means, containing

A) or several the hydroxylgruppenhaltigen (Meth)Acrylcopolymerisate, after one of the requirements 1 to 3,

B) one or more Polyisocyanate, in a such quantity that on a hydroxyl group of the component A) 0.5 to 2 groups of isocyanates are void,

C) one or more organic solvents and/or water as well as

D) if necessary pigments, fillers and lacquer-usual additives.

5. Procedure for the production of coat means, by the fact characterized that one mixes a bonding agent if necessary after one of the requirements 1 to 3 with one or more organic solvents and/or water, one or more Polyisocyanaten, as well as pigments and/or fillers and/or lacquer-usual additives.

6. Procedure for the multi-layer lacquer finish, by the fact characterized that one lays a finish coating layer or a basis film of varnish and a clear film of varnish on on a substrate pre-coated if necessary, whereby for the production of finish coating layer or clear film of varnish a coat means is used on the basis one or several of the bonding agents after one of the requirements 1 to 3 and/or a coat means according to requirement 4.

7. Use of the bonding agents after one of the requirements 1 to 3 solvents organic for the production of coat means on the basis.

8. Use of the bonding agents after one of the requirements 1 to 3 for the production of aqueous coat means.

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In English:

Description OF DE4445355 [0001] The invention concerns acrylate copolymers, which can be used as bonding agents both in water-dilutable and loesemittelhaltigen isocyanate-interlacing coat means. The bonding agents apply in particular in transparent or pigmented finish coating coat means, which are used into the vehicle and vehicle part lacquer finish. State of the art [0002] Two-component coat means on basis of a Polyhydroxyl and of a polyisocyanate component, so-called two-component PU lacquers, 2K-PUR-Lacke, are for a long time well-known. One receives from these coat means qualitatively high-quality coats with very good chemical and solvent stability as well as to a high optical and mechanical quality level. [0003] For ecological reasons one turns into today to replace loesemittelhaltige lacquers with water lacquers or to reduce the solvent content of the loesemittelhaltigen lacquers by solid rise. With that today well-known water-dilutable 2K-PUR-Lacken characteristics are obtained, which loesemittelhaltiger 2K of polyurethane paints corresponds to those to a large extent. For the water-dilutable lacquers special water-dilutable bonding agents and adapted application techniques were developed. [0004] Nevertheless also loesemittelhaltige 2K-Produkte, in particular with low solvent content, has such still their right of existence. Often the straight combination of different products, more loesemittelhaltiger and more water dilutable, leads in a structure of lacquer to particularly optimal results. [0005] In the DE-A-41 27,513, EP-A-0 752 06 and EP-A-0 219,131 are for example described from different in each case monomers developed hydroxylgruppenhaltige acryl copolymers, which can be used as bonding agent component for loesemittelhaltige isocyanate-interlacing coat means. The copolymers have generally an acid number of 0-11 mg KOH/g festharz. [0006] Into the DE-A-41 29,951, DE-A-41 37,429, DE-41 01,696 as well as EP-A-0 358,979 is described further hydroxylgruppenhaltige acrylate copolymers composed of usual monomers, which are applicable as bonding agent component in water-dilutable lacquers. The copolymers receive, prefer their water dilutability by the installation of hydrophilic ionischer groups anionischer groups such as groups of carboxyls, which are neutralized afterwards with Basen. In order to obtain a sufficient water dilutability, as much carboxylgruppenhaltige monomers are inserted that an acid number of prefers itself 25-150 results in. [0007] An employment of the bonding agents in loesemittelhaltigen coat means, specified last, is not favourable, since the sour groups in loesemittelhaltigen systems, necessary for the achievement of a good water dilutability, lead to a worsened water firmness and condensed moisture stability. Setting of tasks [0008] Task of the invention is it to make available to bonding agent which can be used both in loesemittelhaltigen and water-dilutable coat means without further modification, without thereby losses in the quality of the

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technological lacquer characteristics, to have to accept e.g. water firmness and condensed moisture stability. In addition a sufficiently long pot life and a troublefree film formation must be ensured. [0009] The task solved by bonding agents, containing one or more hydroxyl-functional (Meth)Acryl copolymers with a content of groups of carboxyls according to an acid number of 25 to 50 mg KOH/g, those are available by copolymerisation of

a) 20.0-35.0 thread % one or several Glycidylester of alpha, branched aliphatic saturated mono carbonic acids, b) alpha-dialkyl-substituted 15.0-25.0 thread % one or several hydroxyalkyl esters (Meth)Acrylsäure, c) 10.0-40.0 thread % one or several alkyl esters (Meth)Acrylsäure, in particular Methacrylsäure, d) 8.0-25.0 thread % (Meth)Acrylsäure, and e) 20.0-35.0 thread % styrene and/or one or several styrene derivatives, whereby the sum of the components A) to e) to 100 thread % complements itself in each case. [0010] The expression used in the available description and the patent claims "(Meth)Acryl" stands synonymously for acryl and/or Methacryl. [0011] It was shown the fact that the according to invention (Meth)Acrylatcopolymerisate both in water-dilutable and in loesemittelhaltigen lacquers without further modification to be used can, without in loesemittelhaltigen lacquers compared with conventionally used bonding agents water firmness and condensed moisture stability worsen. In water-dilutable coat means as neutralization means for the transfer of sour groups into anionische groups for this usual Basen, for example amines, is used e.g. tertiary amines. Tertiary amines are also typical catalysts for the cross-linking reaction between isocyanate and hydroxyl groups, which can proving favourably itself with later employment in Isocyanatvernetzer to containing coat means than. In the bonding agent according to invention the groups of carboxyls lie at least partly neutralized forwards. Thus the water dilutability is given in aqueous lacquer systems. If the same neutralized bonding agent according to invention is used in loesemittelhaltigen lacquers, then the tertiary amine working as catalyst is contained in substantially higher quantity than usually for solvent systems. It is surprising that this over catalyzing does not affect itself disturbing. It does not come, as to be expected was, too for the processing to short pot lives and film tears during the film formation. [0012] The subject of the invention are likewise coat means, which those managing described hydroxylgruppenhaltigen (Meth)Acrylcopolymerisate contained, whereby the coat means contain: A) or several that a managing described hydroxylgruppenhaltigen (Meth)Acrylcopolymerisate, B) one or more Polyisocyanate, C) one or more organic solvents and/or water as well as D) if necessary pigments, fillers and lacquer-usual additives. [0013] A further the subject of the invention are procedures for the production of water-dilutable and loesemittelhaltiger coat means using the bonding agents according to invention. [0014] The bonding agents the according to invention are hydroxylgruppenhaltige (Meth)Acrylcopolymere. you exhibit to a weight-middle molecular weight (Mw) of prefer 2500 to 20000 g/Mol, particularly preferentially from 5000 to 10000 g/Mol. Their hydroxyl-Zahl is prefers 80 to 200 mg KOH/g, particularly preferentially from 100 to 150 mg KOH/g. Their acid number of 25 to 50 mg KOH/g prefers 27 to 35 mg KOH/g. [0015] The production (Meth)Acrylcopolymerisate can be accomplished by polymerization in usual procedures, e.g. the substance -, solution -, or perlpolymerisation. The different polymerization procedures are well well-known. For example it described in

Houben Weyl, methods of organic chemistry, 4. Edition, volume 14/1, S. 24-255 (1961). [0016] The solution polymerization procedure becomes for the production of the according to invention (Meth)Acrylcopolymerisate preferred. The solvent is submitted into the reaction container, heated on boiling temperature and metered the monomer/initiator mixture continuously in a certain time. The polymerization is preferably accomplished preferentially at temperatures between 100 C and 160 C, with 130 C to 150 C. [0017] The polymerization reaction can be started with well-known polymerization initiators.

Examples of prefers assigned initiators for the polymerization are: Peroxides, like dialkyl peroxides, like Di-tert.-Butylperoxid, Di-cumylperoxid; Diacylperoxide, as Di-benzoylperoxid, Di-lauroylperoxid, Perester, as tert. Butyl perbenzoat, tert.

Butylperpivalat, hydraulic peroxides, like Cumolhydroperoxid, Azoverbindungen, as Azo to cyclohexancarbonitril, Azo to isobutyronitril, 2,2-Azo-bis(2-methyl-butyronitril). [0018] As

organic solvents, which can be appropriately used with the solution polymerization as well as later also in the coat means according to invention, are suitable for example: Glykolether, like Ethylenglykoldimethylether; Glykoletherester, like ethyl glycol acetate, Butylglykolacetat, 3-Methoxy-n-butylacetat, Butyldiglykolacetat, Methoxypropylacetat, ester such as butyl acetate, ISO butyl acetate, amyl acetate; Ketone, like Methylethylketon, Methylisobutylketon, Cyclohexanon, Isophoron, as well as proportionately aromatic hydrocarbons, like xylene and high-simmering parliamentary groups with a kp from 164 to 185 C; aliphatic hydrocarbons. [0019] For the regulation of the molecular weight chain carriers can, e.g.

Mercaptane, Thioglykolsaeureester, Cumol, dimeres alpha methyl styrene are used. [0020] The hydroxylgruppenhaltigen according to invention (Meth)Acrylcopolymerisate are appropriate preferentially in a glass transition temperature range from +10 C to +80 C, computed from the glass transition temperature of the homopolymerisate indicated in the literature for individual monomers. (the computation can take place for example after the FOX equation, sees e.g. polymers of materials, Batzer, 1985, S. 307). [0021] As monomer

component A) for the production of the bonding agents according to invention Glycidylester of alpha, alpha-dialkyl-substituted branched out aliphatic satisfied C7 to C13-Monocarbonsaeuren, begun. The Glycidylester is manufactured e.g. by conversion of the appropriate acid with epichlorohydrin to well-known way. They are commercially available, e.g. as Cardura E10 (registered registered trade mark; Commercial product of the company Shell). [0022] Monomer component b)

are hydroxyalkyl esters (Meth)Acrylsaeure with prefers 1-6 C-atoms in the hydroxyalkyl remainder. Examples for this are Hydroxyethyl(meth)acrylat, Hydroxymethyl(meth)acrylat, Hydroxypropyl(meth)acrylat, Butandiol-1,4-mono(meth)acrylat, Hexandiol 1,6-monoacrylat. [0023] Monomer component C)

are alkyl esters (Meth)Acrylsaeure, in particular the Methacrylsaeure, with prefers 1-6 C-atoms in the alkyl residue. Examples for this are Methylmethacrylat, Ethylmethacrylat, Isopropylmethacrylat, n-Butylmethacrylat, ISO Butylmethacrylat, Cyclohexylmethacrylat; Ethylacrylat, n-butyl acrylate, Isobutylacrylat, tert Butylacrylat, cyclohexyl acrylate. [0024] For the equipment of the according to invention (Meth)

Acrylcopolymerisate with groups of carboxyls becomes (Meth) Acrylsaeure (component D)) in such quantities it in-polymerizes that an acid number results from 25 to 50, preferentially from 27

to 35 mg KOH/g. [0025] As component e) styrene and styrene derivatives become, as p-tert. - Butylstyrol, p-Methylstyrol and Vinyltoluol, prefer styrene in-polymerized. [0026] After completion of the polymerization a neutralization means is added to the polymer solution, in order to transfer the sour groups of the resin totally or partly into anionische groups. Thus a good water dispersion bar is to be achieved in the case of an application of the bonding agents according to invention in aqueous coat means. As neutralization means serve for example inorganic Basen, ammonia or primary, secondary or tertiary amines or Aminoalkohole. Examples of inorganic Basen are sodium hydroxide, potassium hydroxide. As amines e.g. tri methyl amine, mono -, Di and tri ethyl amine, Di and tri ethanol amine, Dimethylethanolamin, Dimethylisopropanolamin or n-Methylmorpholin are used. [0027] The solid content of the received Poly(meth)acrylat solution amounts to for example 60 to 80 thread %, prefers 65 to 75 thread %. [0028] (Meth) Acrylcopolymerisate are combined in the coat means according to invention with Polyisocyanaten as cross linkage materials. The portion of Polyisocyanatvernetzer is selected in such a way that on a hydroxyl group (Meth)Acrylcopolymeren 0.5 to 2 groups of isocyanates been void. [0029] With the polyisocyanate component B) of the coat means it acts around arbitrary organic Polyisocyanate with aliphatic, cyclo-aliphatic, araliphatic and/or aromatically bound free groups of isocyanates. They are at ambient temperature liquid or by additive of organic solvents liquefied. Preferred the Polyisocyanate exhibits with 23 C a viscosity from 1 to 6000 mPa s, preferably over 5 and under 3000 mPa s. [0030] Such Polyisocyanate is generally well-known and e.g. described in DE-A-38 29,587 or DE-A-42 26,243. [0031] Preferred if it acts with the Polyisocyanaten around polyisocyanate mixtures also excluding aliphatic and/or cyclo-aliphatic bound groups of isocyanates with a middle NCO- functionality from 1,5 to 5, prefers 2 to 3. [0032] Particularly well suitably for example "Lackpolyisocyanate" are on basis of Hexamethylendiisocyanat, 1-Isocyanato-3,3,5-trimethyl-5 ISO cyanogen atomic ethyl cyclohexane (IPDI) and/or Bis(isocyanatocyclohexyl) - methane and those actually admitted Biuret -, Allophanat -, Urethanund/oder groups of ISO cyanogen urates of exhibiting derivatives of these Diisocyanate, which were preferably released following their production, by distillation from the surplus Ausgangsdiisocyanat up to a remainder content from less than 0.5 thread %. [0033] Sterisch obstructed Polyisocyanate of the general formula [image is likewise very well suitable - lake original document] whereby $g_1 = H$ or R_2 is, $R_2 = C_nH_{2n+1}$ with $n = 1$ to 6. [0034] The substituents g_1 and R_2 are either linear or branch out, directly or unequally. The basic structure A can consist of a simple connection, an aromatic or alicyclischen ring or of an aliphatic linear or branched C-chain with 1 to 12 C-atoms. [0035] Examples for this are 1,1,6,6-Tetramethyl-hexamethylendiisocyanat, 1,5-Dibutyl-pentamethylendiisocyanat, p or m Tetramethylxylylendiisocyanat and the appropriate hydrogenated homologous ones. This Diisocyanate can be likewise in an appropriate way to high-functional connections converted, for example by Trimerisierung or by conversion with water or Trimethylolpropan. [0036] Likewise suitably, however less preferentially is aromatic Polyisocyanate. Examples for this are Polyisocyanate on basis of 2,4-Diisocyanatotoluol or its mixtures with 2,6-Diisocyanatotoluol or on basis of 4,4'-

Diisocyanatodiphenylmethan as well as their Trimerisate.

[0037] The coat means according to invention can contain additionally lacquer-usual auxiliary materials. Those are for example process means on the basis of (Meth)Acryl meth-) Acryl-Homopolymerisaten or silicone oils, antifoaming agent, softener such as phosphoric acid, Phthalsaeure or citric acid ester, Rheologiebeeinflusser, like hydrogenated Ricinusöl, micro gels, hardening accelerators for the cross-linking reaction of the hydroxyl-functional bonding agents according to invention with Polyisocyanaten, e.g. organic metal salts, like Dibutylzinndilaurat, Zinknaphthenat, as well as light-protectives. The additives are used in usual, the specialist common quantities. [0038] In the coat means also pigments and/or fillers can be contained. As pigments all lacquer-usual pigments of organic or inorganic nature are suitable. Examples of inorganic or organic farbpigmente and fillers are titanium dioxide, mikronisiertes titanium dioxide, brown iron oxide pigments, soot, silicon dioxide, barium sulfate, talcum powder, Azopigmente, Phthalocyaninpigmente, Chinacridon or Pyrrolpyrrolpigmente. [0039] With the coat means it can act around such on water basis or around such on solvent basis. In solvent-based coat means for example such solvents are contained, as them managing during the description of the solution polymerization for production (Meth) Acrylcopolymerisate were called. These solvents can be contained in the water-dilutable coat means to small portions also. The solvent content should not lie preferentially over 15%.

[0040] For the production of pigmented coat means the single components can mixed with one another and in usual way homogenized and/or will grind. For example it can be proceeded in such a way that first a part of the hydroxylgruppenhaltigen (Meth)Acrylcopolymerisats mixed with the pigments and/or fillers as well as lacquer-usual additives and solvents and in meal aggregates angerieben becomes. Afterwards the grinding stock with the remaining becomes (Meth)

Acrylcopolymerisatloesung completed. The Anreiben of the pigments and fillers can take place also with usual paste resins (Anreibeharzen). [0041] The production of loesemittelhaltiger coat means the hydroxylgruppenhaltigen (Meth)

Acrylcopolymerisate, if necessary mixed with pigments, become fillers and lacquer-usual additives briefly before the application with the Polyisocyanaten thoroughly. Then with organic solvents to spraying viscosity one adjusts. [0042] The production of aqueous coat means first likewise the hydroxylgruppenhaltigen (Meth)Acrylcopolymerisate, if necessary mixed with pigments, become fillers and lacquer-usual additives briefly before the application with the Polyisocyanaten thoroughly. Then with water under good agitating to spraying viscosity one adjusts.

[0043] The in this way manufactured coat means are for example suitable for the production of multi-layer coats. They can be laid on for example as clear film of varnish. They are particularly suitable for the production of a pigmented or transparent surface layer of an air-drying or force-drying multi-layer coat. The drying temperatures are for example with 5 to 80 C, preferentially at ambient temperature to 60 C. They are suitable in particular for the lacquer finish and prefer repair lacquer finish of vehicles and vehicle parts. [0044] The coat means can in well-known procedures, e.g. syringes, for example after the High volume Low Pressure (HVLP) procedure, dipping, roles or blades, are appliziert. For the achievement of a transparent surface layer for example a clear lacquer according

to invention can be laid on in the wet in wet procedure on conventional or aqueous basis lacquers, on which both layers together z. B. 15-20 min. with z. B. 50-80 C to be hardened. [0045] The invention concerns therefore also procedures for the production of multi-layer coats and/or the use of the bonding agents according to invention in loesemittelhaltigen or aqueous coat means for the production of multi-layer coats, whereby in particular the covering and/or clear films of varnish are provided of multi-layer coats with the coat means. [0046] According to invention the coats wise excellent lacquer characteristics, water and condensed moisture stability provided with the coat means up. [0047] The film formation of the clear lacquer takes place both in the conventional and in the aqueous direction tear-free. The films drain to high gloss, chemikalienbestaendigen (superfuel) and against mechanical injuries steady coats. The weathering is equal to that of the purely conventional clear lacquers. [0048] The following examples serve the invention for the explanation. All parts refer to the weight. Cardura is a registered registered trade mark. Aufuehrungsbeispiel

Production of (Meth)Acrylcopolymerisaten Example 1 [0049] into a 6-Liter-Dreihals-Schliffkolben, which is equipped with an agitator, a kontaktthermometer, a ball radiator and a dropping funnel, Butylglykol and 890 g Cardura E10 (commercial product of the company Shell) are submitted to 1250 g and heated under agitating during switched on return flow cooling on 150 C. Within 6 hours a mixture from 370 g acrylic acid, 645 g Hydroxyethylmethacrylat, 510 g Methylmethacrylat, 940 g styrene and 145 g is continuously metered Di-tert.-butylperoxid. Subsequently, the beginning 4 is after-polymerized hours with 145 to 141 C, cooled down on 80 C and diluted with 250 g Solvesso 100. The polymer solution has a solid body of 70,0%, an acid number of 20,9 mg KOH/g. After cooling on 60 C with 106,3 g Dimethylethanolamin is neutralized, this corresponds neutralization degree from 65%. The viscosity of this solution amounts to 580 mPa s/25 C (dilutes with butyl acetate on 55%). Into a 4-Liter-Dreihals-Schliffkolben, which is equipped with an agitator, a kontaktthermometer, a ball radiator and a dropping funnel, 625 g Butylglykol and 445 g Cardura E10 (commercial product of the company Shell) are submitted to example 2 [0050] and heated under agitating during switched on return flow cooling on 150 C. Within 6 hours a mixture from 207,5 g acrylic acid, 322.5 g Hydroxyethylmethacrylat, 255.5 g Methylmethacrylat, 447.5 g styrene and 72.5 g Di-tert.-Butylperoxid is continuously metered. Subsequently, the beginning 4 is after-polymerized hours with 145 to 141 C, cooled down on 80 C and diluted with 125 g Solvesso 100. The polymer solution has a solid body of 70,8%, an acid number of 26,9 mg KOH/g. After cooling on 60 C with 69,4 g Dimethylethanolamin is neutralized, this corresponds neutralization degree from 65%. The viscosity of this solution amounts to 730 mPa s/25 C (dilutes with butyl acetate on 55%). Into a 4-Liter-Dreihals-Schliffkolben, which is equipped with an agitator, a kontaktthermometer, a ball radiator and a dropping funnel, 625 g Butylglykol and 445 g Cardura E10 (commercial product of the company Shell) are submitted to example 3 [0051] and heated under agitating during switched on return flow cooling on 150 C. Within 6 hours a mixture from 218,7 g acrylic acid, 322.5 g Hydroxyethylmethacrylat, 255 g Methylmethacrylat, 436.3 g styrene and 72.5 g Di-tert.-Butylperoxid is continuously metered. Subsequently, the beginning 4 is after-polymerized hours with 145 to 141 C,

cooled down on 80 C and diluted with 125 g Solvesso 100. The polymer solution has a solid body of 71,0%, an acid number of 29,9 mg KOH/g. After cooling on 60 C with 77,1 g Dimethylethanolamin is neutralized, this corresponds neutralization degree from 65%. The viscosity of this solution amounts to 775 mPa s/25 C (dilutes with butyl acetate on 55%). Into a 4-Liter-Dreihals-Schliffkolben, which is equipped with an agitator, a kontaktthermometer, a ball radiator and a dropping funnel, 625 g Butylglykol and 482.5 g Cardura E10 (commercial product of the company Shell) are submitted to example 4 [0052] and heated under agitating during switched on return flow cooling on 150 C. Within 6 hours a mixture from 227,5 g acrylic acid, 305 g Hydroxyethylmethacrylat, 137.5 g Methylmethacrylat, 525 g styrene and 72.5 g Di-tert.-Butylperoxid is continuously metered. Subsequently, the beginning 4 is after-polymerized hours with 145 to 141 C, cooled down on 80 C and diluted with 125 g Solvesso 100. The polymer solution has a solid body of 70,8%, an acid number of 29,9 mg KOH/g. After cooling on 60 C with 77,2 g Dimethylethanolamin is neutralized, this corresponds neutralization degree from 65%. The viscosity of this solution amounts to 830 mPa s/25 C (dilutes with butyl acetate on 55%). Production of a loesemittelhaltigen clear lacquer 1.2 parts of a commercial light-protective, 0.4 parts of a commercial antifoaming agent and 0.4 parts of a commercial process means are submitted to example 5 [0053] in a cleaned dry container and mixed thoroughly. 96.6 parts of the according to invention (Meth)Acrylcopolymerisates added mixed from example 1 become subsequently, and. It results a clear lacquer with a paper-eject time of approx.. 22 seconds (paper-eject time with DIN cup 4, DIN 53,211, 20 C). [0054] The hardener component is prepared from the following components: 4,10 parts of Ethoxypropylacetat, 8.86 parts butyl acetate, 27.00 parts of Solvesso of 100, 12.50 parts xylene, 4.00 parts of Methoxypropylacetat, 0.14 parts of Dibutylzinndilaurat solution (10%ig) and 43.40 parts commercial polyisocyanate on basis of Hexamethylendiisocyanat, 90%ig in butyl acetate. [0055] Before the application the clear lacquer and the polyisocyanate hardener in the volumenverhaeltnis 100 become short: 40 with one another mixes. The master component is submitted, which polyisocyanate hardener mixes admitted and under the high-speed stirrer thoroughly. Subsequently, 70% of a solvent mixture from 50% butyl acetate and 50% Methoxypropylacetat (related to the entire coat means) are admitted by portion under agitating. Production of an aqueous clear lacquer 6 [0056] as in example 5 described example, a clear lacquer with a paper-eject time of approx. becomes. 22 seconds (paper-eject time with DIN cup 4, DIN 53,211, 20 C) manufactured. [0057] As hardener a commercial polyisocyanate is used on basis of Hexamethylendiisocyanat in solvent-free form. [0058] Before the application the clear lacquer and the polyisocyanate hardener in the volumenverhaeltnis 4 become short: 1 mixes with one another. The master component is submitted, which polyisocyanate hardener mixes admitted and under the high-speed stirrer thoroughly. Subsequently, 85 thread % demineralized water is admitted by portion under agitating. Application of the loesemittelhaltigen and the aqueous clear lacquer [0059] the 6 clear lacquers received in example 5 and by spraying order in a dry coating weight by 40-60 m wet in wet procedures are applied on a usual solvent-based basis film of varnish and hardened after a ventilating phase by 5 minutes 40

minutes with 60 C. The results of the lacquer-technical results are represented in table 1. Table 1 [image - lake original document]

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Description of DE4445355

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Acrylatcopolymerisate, die als Bindemittel
sowohl in wasserverdünnbaren als auch

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